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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

HARTMAN JR, RONALD D

ART UNIT

PAPER NUMBER

2121

DATE MAILED: 06/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/072,029

Applicant(s)

BLEVINS ET AL.

Examiner

Ronald D Hartman Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4.5</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-39 are presented for examination.

Drawings

2. The drawings are objected to because of the following:

Figure 1 has two element **22**; See also, specification; page 8; **22** is listed as both "a memory" and "field devices".

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cheng, U.S. Patent No. 6,360,131, in view of Official Notice.

As per claims 1, 11, 20, 22 and 29, Cheng teaches a process control element (process controller), implemented in software, having a process delay, the element comprising:

- a control block/function which includes one or a plurality of inputs communicatively coupled to one or a plurality of outputs, the input(s) are adapted to receive sets of different process parameters, and the output(s)

are used for controlling the process parameters (e.g. a MIMO process; Figure 2 element 26 and C6 L25-35 and a SISO process; Figure 1 element 12 and C3 L63-65);

- control logic responsive to the inputs to produce control signals at the outputs (e.g. Figure 4 element 52 and C7 L43-54 and Figure 1 element 10); and
- an execution rate block/function adapted to receive values of a parameter related to the process, to compute an execution rate for the control logic based on the parameter (e.g. C4 L1-2; C4 L21-30; C5 L30-35; C6 L31-32).

As per claims 1, 11 and 22, Cheng does not specifically teach a processor or a computer readable medium or memory, however, in light of Cheng's teaching that the controller is preferably implemented using software (e.g. C3 L59-61); Official Notice is taken with respect to these features; that is, since a computer processor and computer readable medium or memory are believed to be features that are known to be used when operating computer software, the inclusion of these features would have been obvious to one of ordinary skill in the art at the time the invention was made..

Furthermore, as per claims 1, 11 and 20, since Cheng does not specifically teach the SISO process or MIMO process being a software element as well, U.S. Patent No. 6,438,430 (See Figure 24) and U.S Patent No. 6,453,308 (Figure 1 and C1 L10-20) is

provided to show that such process(s), in addition to the controller (control element) itself, are capable of being represented by way of a computer program, and therefore the teachings of Cheng would obviously be useful in such system(s) so as to provide for the ability to graphically control aspect's of the control system, wherein control functions are visually displayed on a computer screen so as to provide an easy method by which the system may be controlled, and therefore its inclusion would have been obvious to one of ordinary skill in the art at the time the invention was made.

5. As per claims 2, 12, 23 and 34, Cheng teaches the use of a filter (e.g. Figure 2 element 34; C6 L6-11).

6. As per claims 3, 13, 24 and 35, computation functions that are used to determine the execution rate for the control logic are inherent to Cheng since Cheng clearly teaches the use of parameters for adjusting at least the delay time of a process (e.g. C5 L30-35).

7. As per claims 4, 14, 25 and 35, Cheng teaches the use of a limiter (e.g. C6 L12-17).

8. As per claims 5, 15, 26 and 36, since Cheng clearly teaches non-linear control logic, see rejection of claims 6, 16, 27 and 37 (below), the use of linear control logic would be an obvious variation of Cheng since non-linear behavior is a derivative of

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linear behavior, and this would have been known to one of ordinary skill in the art at the time the invention was made.

9. As per claims 6, 16, 27 and 37, Cheng teaches non-linear behavior or control logic during production (e.g. C3 L27-35).

10. As per claims 7, 17, 28 and 38, Cheng teaches the use of more than one parameter in determining the execution rate (e.g. C4 L21-30 and C6 L43-46).

11. As per claims 8, 18 and 31, Cheng teaches the use of throughput (e.g. C3 L27-31).

12. As per claims 9, 19 and 33, Cheng teaches the use of model predictive control logic (e.g. C8 L19-22).

13. As per claims 10 and 21, Cheng teaches the use of neural networks (e.g. C4 L7-16).

14. As per claim 30, obtaining the parameter during operation of the process is inherent to Cheng since dealing with production process delays inherently deal with process(s) over time and since the process(s) are varied over time, and controlled over this time, the system is affected in real time, and this adequately contemplates the claimed features of claim 30.

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15. As per claim 32, Cheng teaches a feed rate (e.g. production speed; C3 L25-26).

16. As per claim 39, Cheng teaches the determination of dead time (e.g. C3 L20-30).

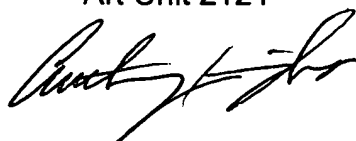
Conclusion

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ronald D Hartman Jr. whose telephone number is 703-308-7001. The examiner can normally be reached on Mon. - Fri., 11:30 am - 8:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703-308-3179. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ronald D Hartman Jr.
Examiner
Art Unit 2121



Anthony Knight
Supervisory Patent Examiner
Group 3600